

Amendments to the Specification:

NB 6/6/06

Please replace the paragraph beginning at page 5, line <sup>8</sup>~~7~~ with the following amended paragraph:

Referring to FIG. 3, a data structure 70 includes a large table 72 at the root, branching to small tables 74, called trie tables. A traversal proceeds in parallel on the two trees, using pipelined reads. Each trie table 74 is addressed by a span of IP destination address bits to locate an indexed table entry. Each indexed trie table entry can optionally contain a route entry pointer and a pointer to the next table. Each trie table 74 contains prefix match fields 80 for each indexed entry, a population count of pointers 82, and hidden prefix entries 84 that hold shorter prefix route entry pointers. A leaf entry is copied to other leaf entries in the same trie table 74 to enable matches on multiple IP destination addresses, yielding the route entry that has the longest prefix match. Hidden entries are copied to shared memory entries when a longer prefix entry is deleted.

Please replace the paragraph beginning at page 10, line 18 with the following amended paragraph:

Referring to FIG. 6, a longest prefix match look-up process 150 includes performing 152 two parallel depth-wise tree searches, one starting at the hi64k table, and the other starting at the hi256 table. A longest prefix match look-up utilizes the tables set up by the route add process 100. First table lookup, tree nodes represent 4 bits of address. Each lookup includes 2 halfwords, i.e., a possible pointer to the route entry (rt\_ptr\_long and rt\_ptr\_short), and a possible pointer to the next node in the tree (trie\_ptr\_long and trie\_ptr\_short). The process 150 determines 158 whether there is a trie\_ptr. If no trie\_ptr exists, the resulting rt\_ptrs are compared 156. The process 150 determines whether the rt\_ptr\_long is non-null. If non-null, the process 150 selects 160 the prefix as a match. If

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Please add the following new paragraph after the paragraph ending at page 1, line ~~N~~<sup>10</sup>:

-- Summary of the Invention

In one aspect, the invention features a network router including an input switch, an output switch, a controller, the controller including a plurality of look-up engines, each of the look-up engines receiving look-up requests in a round robin fashion, and a memory for storing data for access by a longest prefix match program, the program including a data structure stored in the memory, the data structure including information resident in a database used by the longest prefix match program and including a large table at a root, the root branching to nodes containing small trie tables, each trie table addressed by a span of Internet protocol (IP) address bits to locate an indexed trie entry, the indexed trie entry including a route pointer and a trie pointer. --